

REMARKS

By this Amendment, claim 13 is amended merely to respond to the Office Action's objection by clarifying the recited subject matter while maintaining the scope of its claim coverage. Claims 1, 3-5, 8-10, 12-14, 17, and 18 are pending.

The Office Action rejected claims 1, 3-5, 13 and 14 under 35 U.S.C. 103(a) as being unpatentable over Antonio et al. (U.S. 5,621,752; hereafter "Antonio"), Bierly et al. (U.S. 6,370,182; hereafter "Bierly") and Popovic et al. (U.S. 6,370,397; hereafter "Popovic") and rejected claim 10 under 35 U.S.C. 103(a) as being unpatentable over Antonio, Bierly, Popovic, and Lomp et al. (U.S. 6,272,168; hereafter "Lomp").

Applicants traverse the rejections because the cited prior art references, analyzed individually or in combination, fail to teach or suggest the combination of features recited by the amended claims.

For example, contrary to the assertions of the most recent Office Action, the cited prior art fails to teach or suggest the claimed receiver including "at least one rake branch, ... wherein, the plurality of correlators included in the at least one rake branch are adapted to calculate, for only one branch of the received signal, a correlation from a calculated incoming direction and from left and right sides of that incoming direction of that at least one rake branch," and "wherein the calculation means are adapted to calculate a control signal for controlling the beam formers such that, if the correlation result calculated, for the only one branch of the received signal, from the left or right side of the incoming direction is higher than the correlation result obtained from the calculated incoming direction for the only one branch of the received signal, the first beam former is controlled to receive the signal from the left or right side of the incoming direction having the higher correlation result," as recited by independent claim 1 and its dependent claims.

Similarly, the cited prior art fails to teach or suggest the claimed method "wherein said correlating includes calculating, for only one branch of the received signal, a correlation from a calculated incoming direction and from left and right sides of that incoming direction of each rake branch," further comprising "monitoring, for the only one branch of the received signal, the incoming direction and delay variation of the signal component on the basis of the output signals of the correlators," and "wherein the beam formers are at least in part controlled by calculating, inside each rake branch, a control signal for controlling the beam formers such that, if the correlation result calculated, for the only one branch of the received

signal, from the left or right side of the incoming direction is higher than the correlation result obtained from the calculated incoming direction for the only one branch of the received signal, the first beam former is controlled to receive the signal from the left or right side of the incoming direction having the higher correlation result,” as recited by independent claim 13 and its dependent claims.

In response to the previously submitted arguments for patentability, the Office Action has asserted that Antonio (and particularly, Fig. 12 and col. 14, lines 36 to 49) teaches utilization of only one branch for left/right and early/late monitoring. However, Applicants respectfully submit that Antonio only contains eleven figures not twelve; nevertheless, the referenced specification passage clearly teaches using both branches, I and Q, for determining left/right processing. I-channel multipliers are supplied with I-channel samples of right and left beam signals. Similarly, Q-channel multipliers are supplied with Q-channel samples of right and left beam signals. Thus, both I and Q channel samples are utilized in calculating left/right processing.

Thus, Antonio merely discloses a spread spectrum communication system in which signals received with several antenna beams (e.g., 3) are routed to a rake branch. The signal received with the middle beam is used for reception. The correlations of the signals received with the left and right beams are also measured. If one of these signals gives a better correlation result than the middle beam, reception is switched to the respective beam.

Accordingly, Antonio fails to disclose, teach or suggest the claimed invention wherein only one of the branches (I or Q) is used to calculate correlation results for, and/or monitor, the incoming direction and delay of the received signal.

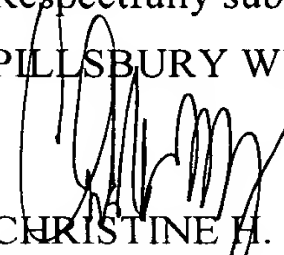
Popovic, El-Tarhuni, and Lomp fail to remedy the deficiencies of Antonio. Popovic merely discloses a search window delay tracking procedure for use in a multipath search processor of a CDMA radio receiver. El-Tarhuni merely discloses systems and methods for generating despreading codes with refined estimates of transmission delays in CDMA systems. Lomp merely discloses use of an adaptive vector correlator (AVC) to estimate the channel impulse response and to obtain a reference value for coherent combining of received multipath signal components.

Therefore, the teachings of Antonio, Popovic, El-Tarhuni, and Lomp, analyzed individually or in combination, fail to teach or suggest the combination of features recited by the rejected claims. Accordingly, claims 1, 3-5, 8-10, 12-14, 17 and 18 are allowable.

All objections and rejections having been addressed, Applicants request issuance of a notice of allowance indicating the allowability of all pending claims. If anything further is necessary to place the application in condition for allowance, Applicants request that the Examiner contact Applicants' undersigned representative at the telephone number listed below.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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